

Application No. 10/764,652
Response to Office Action

Customer No. 01933

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

ALLOWABLE SUBJECT MATTER

The Examiner's allowance of claims 5-9 is again respectfully acknowledged.

THE CLAIMS

Claim 1 has been amended to incorporate the subject matter of claim 3 (which has been canceled), and claim 4 has been amended to depend from claim 1.

No new matter has been added, and it is respectfully requested that the amendments to claims 1 and 4 be approved and entered.

THE PRIOR ART REJECTION

Claims 1 and 2 were rejected under 35 USC 102 as being anticipated by USP 5,778,848 ("Takahashi et al"); and claims 3 and 4 were rejected under 35 USC 102 as being anticipated by USP 6,868,819 ("Saiga et al"). These rejections, however, are respectfully traversed with respect to the claims as amended hereinabove.

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As recognized by the Examiner, Takahashi et al relates to a lubricating system for a four-cycle outboard motor. According to Takahashi et al, an outboard motor 11 includes a powerhead 12 that includes a powering internal combustion engine 13. An oil pump 65 pumps oil throughout the engine 13 through a main gallery 66 that is integrally formed within the lower face of a cylinder block 21, and an oil filter 71 is mounted to the side of the engine 13. And as recognized by the Examiner, Takahashi et al discloses that the invention thereof may be utilized with engines having various numbers of cylinder and cylinder configurations. (See column 1, lines 6-8, column 2, lines 28-30, column 2, line 67 to column 3, line 3, column 4, lines 56-58 and column 5, line 31 of Takahashi et al.)

As also recognized by the Examiner, Saiga et al also relates to a lubricating system for an outboard motor. According to Saiga et al, an engine 3, which is a water-cooled four-cycle, V-type, six-cylinder engine, includes a main oil gallery 49 positioned toward the vertical direction of the cylinder block 19 for lubricating oil in a valley of V-bank 19. In addition, as recognized by the Examiner, according to Saiga et al a descending passageway 50 for engine cooling water is positioned next to main oil gallery 49, whereby the engine-cooling water always keeps the lubricating oil at the proper temperature so as to secure a high level of performance of engine 3.

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According to Saiga et al, moreover, a filter-mounting 52 having a mounting face 51 and an oil filter 55 detachably mounted thereto is positioned on the outer wall of the cylinder block 17, and a first oil passage 53 at the bottom surface of cylinder block 17 extends from the mounting base 52 to the main oil gallery 49. In addition, according to Saiga et al, a second oil passage 54 at the bottom of the cylinder block 17 extends from the mounting base 52 and is nearly parallel to the first oil passage 53. And according to Saiga et al, oil distribution passageways 63 extend from the main oil gallery 49 to the upstream side of oil jets 62, which are provided at the walls facing crank chambers 22 between left-right cylinder liners 20 and point into the cylinder liners 20. (See column 1, lines 8 and 9, column 3, lines 66 and 67, column 5, lines 14 to 30 and 46-49 and column 6, lines 52 to 56 of Saiga et al.

According to the present invention as recited in amended claim 1, by contrast, a lubricating structure for an outboard motor is provided which comprises: a vertically installed V-type engine having a side part; a main oil gallery formed in the side part of the engine, for allowing lubricating oil to pass therethrough; and an oil gallery formed substantially in the central part of the engine in the transverse direction of the engine, as a passage separate from the main oil gallery, for allowing oil for cooling pistons to pass therethrough.

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That is, according to the present invention as recited in amended independent claim 1, the oil gallery for the piston cooling oil is formed substantially in the central part of the engine, separately from the main oil gallery that is formed in the side part of the engine.

With this structure, it is possible to prevent the main oil gallery from being influenced by a drop in oil pressure in the path for cooling the pistons, which is not possible when the oil gallery for cooling the piston is in direct communication with the main oil gallery.

By contrast, it is respectfully submitted that Takahashi et al merely discloses a structure in which the main oil gallery (main gallery 66) is integrally formed within the lower face of the engine, and the oil filter mounted to the side of the engine. In addition, although the Examiner has pointed out that Takahashi et al discloses that the invention thereof may be utilized with engines having various numbers of cylinder and cylinder configurations, it is respectfully submitted that Takahashi et al merely suggests that the main oil gallery and the oil filter may be disposed on the side of engines having different cylinder configurations.

Thus, although Takahashi et al may disclose a main oil gallery and oil filter on the side of a V-type engine, it is respectfully submitted that Takahashi et al does not disclose,

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teach or suggest an oil gallery formed substantially in the central part of the engine in the transverse direction of the engine, as a passage separate from the main oil gallery, for allowing oil for cooling pistons to pass therethrough, as according to the present invention as recited in amended independent claim 1.

In addition, it is respectfully submitted that Saiga et al merely discloses a structure in which the main oil gallery for lubricating oil is provided at the valley of the V-bank in the cylinder block, and the descending passageway for engine cooling water positioned next to the main oil gallery.

That is, Saiga et al discloses positioning a cooling water jacket next to the main oil gallery for lubricating oil located at the valley of the V-bank.

According to amended independent claim 1, by contrast, the main oil gallery for allowing lubricating oil to pass therethrough is formed in the side part of the engine, and an oil gallery for allowing oil for cooling pistons to pass therethrough is formed substantially in a central part of the engine in a transverse direction of the engine, as a passage separate from the main oil gallery.

It is respectfully submitted that Saiga et al does not disclose, teach or suggest an oil gallery formed substantially in the central part of the engine in the transverse direction of the

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engine, as a passage separate from the main oil gallery, for allowing oil for cooling pistons to pass therethrough, as according to the present invention as recited in amended independent claim 1.

Accordingly, it is respectfully submitted that neither Takahashi et al nor Saiga et al discloses, teaches or suggests a lubricating structure for an outboard motor comprising: a vertically installed V-type engine having a side part; a main oil gallery formed in the side part of the engine, for allowing lubricating oil to pass therethrough, and an oil gallery formed substantially in a central part of the engine in a transverse direction of the engine, as a passage separate from the main oil gallery, for allowing oil for cooling pistons to pass therethrough.

In view of the foregoing, it is respectfully submitted that the present invention as recited in amended independent claim 1, and claims 2 and 4 depending therefrom, clearly patentably distinguishes over Takahashi et al and Saiga et al, taken singly or in combination, under 35 USC 102 as well as under 35 USC 103, along with allowed claims 5-9.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

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If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned for prompt action.

Respectfully submitted,



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